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ABSTRACT

A three-part exploratory study was conducted to examine children's responses to interactive, nonlinear HyperCard stories and the children's design of stories in HyperCard. Twenty-three fifth graders took part in a semester-long language arts training program that included HyperCard as well as traditional stories in books. Two questions were posed: how HyperCard affects children's understanding of story structure, and what happens when the conventions of story--beginning, middle, end--are transformed into a nonlinear form. First, the children were introduced to a variety of children's stories, which were read to them. The characteristics of story structure and the components of stories were explained and discussed. Second, the children were introduced to HyperCard through the "Amanda Stories," which are interactive, nonlinear narratives told through a series of pictures that include simple animation and sound effects but virtually no written text. After completing one of the "Amanda Stories," they discussed the story structure and story features and compared the story to book-based stories. In the third and final phase, the children wrote and illustrated their own stories, which were adapted to HyperCard. Research methods used in this qualitative study included taking notes on class discussion and student questions on the stories read aloud from books; observation of student pairs working through the "Amanda Stories" and related interviews; and evaluation of student stories, both text and pictures. The results suggest that children can adapt to the new story structure offered by HyperCard. However, training in the features of story structure and having students practice designing stories for the hypertext medium were both beneficial to the students. (13 references) (BBM)

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Narrative and Episodic Story Structure in Interactive Stories

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Introduction

An exploratory study was conducted examining children's responses to interactive, nonlinear HyperCard stories and the children's design of their own stories in HyperCard on the Macintosh computer. Twenty three fifth graders took part in a language arts training program that included HyperCard as well as traditional stories in books. The question was posed: How does HyperCard affect children's understanding of story structure? What happens when the conventions of story --- beginning, middle, end --- are transformed into a nonlinear form? This is an important issue since the research on reading and text comprehension shows that learners who understand the conventions of story structure are better able to understand the text and learn to read and comprehend more effectively than their peers who do not understand story structure (Gage and Berliner, 1988).

Study Overview

In this study, a semester-long language arts training program utilizing HyperCard was implemented with a group of 23 fifth graders. This program consisted of three components. First, the children were introduced to a variety of children's literature read to them by the university researcher. The researcher explained the characteristics of story structure and the components of stories, such as characters and plot and discussed the story characteristics for the stories she read with the children. Second, the children were introduced to HyperCard through the *Amanda Stories* (Goodenough, 1987) which are nonlinear narratives told through a series of pictures that include simple animation and sound effects, but virtually no written text. The computer sessions, with children working in cooperative pairs, were recorded on video. The children "talked through" the stories and after completing one of the *Amanda Stories*, the children were asked to discuss the story structure and story features and to compare the story to book-based stories. In the third and final part of this project, the children wrote and illustrated their own stories which were adapted to HyperCard.

The *Amanda Stories* are interactive narratives told through a series of pictures that include simple animation and sound effects, but virtually no written text. To move a story forward using HyperCard, the children used a mouse to control the cursor on the screen

and to click on "hot spots" hidden within each picture. Since more than one hot spot is hidden within many of the pictures appearing on the screen, there are a variety of possibilities for plot development. The *Amanda Stories* are similar in nature to wordless picture books. These stories, including "Your Faithful Camel Goes to the North Pole" and "Inigo at Home" provided the children with a basic understanding of HyperCard and its possibilities for storytelling and story writing. HyperCard is a tool for designing and accessing information flexibly and in a nonlinear fashion on the Macintosh computer. To move a story forward using HyperCard, the children used a mouse to control the cursor on the screen and to click on "hot spots" hidden within each picture, or card. Since more than one hot spot is hidden within many of the pictures appearing on the screen, there are a variety of possibilities for plot development.

The children were encouraged to write fully-formed stories on topics inspired by a variety of children's literature read to them by the university researcher. An additional source of inspiration for these fifth graders were the *Amanda Stories*. While creating their own HyperCard stories, the children used their problem solving capabilities. The childen composed their stories with pen and paper and then their writing was transferred to word processing files using the computer. All of the children were given total access to the composing process, brainstorming topics for writing, sharing their work in progress, and ultimately editing their stories before publication. The children created illustrations for their stories, using pencil and paper, and these illustrations were scanned into the computer and then placed into HyperCard computer stacks. Thus the children's HyperCard stories consisted of a sequence of drawings with "hot spots" linking them.

At the end of the project, the children had the opportunity to view one another's HyperCard stories via a liquid crystal display overhead projector linked to a Macintosh computer. Needless to say, the children were filled with a sense of excitement and self-satisfaction seeing the results of their work. These stories were compiled in book form in *Super HyperCard Computer Stories;* this book includes both the written stories and printouts showing the cards or pages of illustrations in the HyperCard stacks. This is a unique collection of narratives written and illustrated by 23 fifth graders during their very

first introduction to HyperCard.

Methods

The research methods used in this qualitative study included: 1) taking notes on class discussion and student questions concerning the story structure of stories read out loud from books; 2) observation of student pairs working through the *Amanda Stories* on the computer and related interviews with students; and 3) evaluation of student stories, both text and pictures.

Students worked through the *Amanda Stories* in pairs. They were directed to take turns using the mouse and "talking through" the story as it unfolded on the computer screen. The researchers observed the the sessions on the computer and these sessions were videotaped for later analysis. All students were observed as they worked through both "Your Faithful Camel Goes to the North Pole" and "Inigo At Home!" After the pairs of students had completed each story, they were asked a set of questions concerning story structure, including: (1) retell the story; (2) describe the main characters; (3) what was your favorite part of the story?; (4) were there any differences between this story and the stories that were read out loud in class?; (5) was there any special message?; (6) how did this story make you feel?; (7) did this story give you any ideas for writing stories of your own?

Discussion

This discussion of the research results will focus on the children's responses to the *Amanda Stories* and their observed interactions with the stories. The two Amanda Stories that were used with the fifth graders provided a valuable contrast. The first, "Inigo at Home," consisted of a series of incidents that did not occur in any particular order, although the story always starts at the same point. In the second story, "Your Faithful Camel Goes to the North Pole," the events clearly had a fairly linear order and the "story" had an outcome, stated in the story's title: the camel and its companion were trying to get to the North Pole. In most screens or frames in this story, the North Pole could be seen in the distance, a reminder of the destination or goal. The children responded differently to the two HyperCard stories.

As they went through "Your Faithful Camel Goes to the North Pole," the children

were very focused on getting to the North Pole. In some instances, they were frustrated when they were taken off on what they perceived as a detour from the main story; for example, when the camel builds an igloo out of ice where the two travellers spend the night, or some of the embellishing details that take place at the reindeer's house right before the final leg of the journey. Most students reported that their favorite part of this story is the sleigh ride down the North Pole at the very end of the story.

By contrast, with "Inigo at Home," since there was no clear-cut goal or plot, the children were happy to explore the embellishing details, such as sounds and simple animation sequences. They did not view these details as detours taking them away from the main line of the narrative. Instead, the children perceived the challenge with this story to be the discovery of all the possible details of action, graphics and sound. For example, they took great delight with a spider that lowers itself down from the edge of a picture frame, prompted by the click of a mouse. With this story, the students were working through the stack in a manner that was more in keeping with the premise underlying HyperCard: the availability of powerful nonlinear linkages. The story "reader" doesn't need to always go through the story the same way; instead the "reader," or learner, has control of a rich array of options.

How do HyperCard stories compare with traditional stories? Bolter (1991) suggests that hypertext systems such as HyperCard offer a new type of narrative structure, based on episodes, which creates a new kind of story rhythm. According to Bolter,

> The episodes may be paragraphs of prose or poetry, they may include bit-mapped graphics as well, and they may be of any length. Their length will establish the rhythm of the story --- how long the reader remains a conventional reader before he or she is called on to participate in the selection of the next episode. At the end of each episode, the author inserts a set of links to other episodes together with a procedure for choosing which link to follow. Each link may require a different response from the reader or a different condition in the computer system. (p. 122).

Instead of a structure of beginning, middle and end that characterizes traditional stories, hypertext stories are designed around the more flexible structure of episodes. In the study reported here, the two Amanda Stories that were featured, "Your Faithful Camel Goes to

the North Pole" and "Inigo At Home!", provide a contrast between these two structures. "Your Faithful Camel Goes to the North Pole" retains a more traditional story structure where there is clearly a beginning, middle, and end, whereas "Inigo At Home!" features an episodic structure. At the same time, both of these stories are built upon episodes. Furthermore, both of these stories are fairly simple in structure, largely due to the fact that they are made up almost entirely of pictures.

A contrasting story form can be found in the *Discis* stories, including "Cinderella" and A "Long Hard Day at the Ranch," in CD-ROM format designed to be interfaced with the Macintosh computer. The *Discus* story series on CD-Rom are interactive stories that incorporate hypertext features. These stories are very traditional linear narratives but they are designed to offer a wealth of different "levels" of information, such as spoken word definitions or a spoken identification of an object in an illustration, when the mouse is clicked.

The question of how HyperCard affects children's understanding of story structure is a very important issue since the research on reading and text comprehension shows that learners who understand the conventions of story structure are better able to understand the text and learn to read and comprehend more effectively than their peers who do not understand story structure (Gage and Berliner, 1988). The research on reading suggests that what the text presents is important, but perhaps more important is what the reader brings to a learning situation. Without rich schemata for incorporating the text, not much will be learned. For example, cognitive studies show that students who do not have a schemata for a story often cannot remember stories well. Gage and Berliner (1988) explain:

> Some children enter school with sophisticated ideas about the nature of stories. They know, for example, that stories have beginnings and ends, are usually presented in chronological order, have a hero or heroine, put an obstacle in his or her way, and arrive at a solution to a problem. A child without a story scheme is at a disadvantage. Even if this child could decode every word as well as someone who has a well developed story schema, he or she would probably be found to comprehend less when tested. Reading, then, is more than decoding. There is no doubt that teaching decoding and word recognition skills --- a practice prevalent in schools --- is helpful in making reading more automatic. But reading now is seen also as a sense-making process, with meaning at its core. (p. 307)

Strategies for remedial reading, based strictly on having children read bits and pieces of sentences or do worksheets often devoid of meaning are probably emphasizing the wrong thing. These strategies are much less valuable to remedial readers than is learning to understand the underlying structure (Gage and Berliner, 1988).

One implication of this research on reading and text comprehension is that learners often need reinforcement in understanding, and searching out, the underlying structure of any material they are presented with, whether in book or hypertext format. Without an understanding of the structure of traditional text, learners are at a further disadvantage in approaching the potentially more sophisticated structure of hypertext. In this study, the researcher explained the characteristics of stories and discussed the story characteristics for all the stories presented to the children, including both those read out loud from books and the Amanda stories in HyperCard on the computer. Thus, it is recommended that in introducing learners to HyperCard stories, teachers present activities that help learners think about, and practice using, the structural features of stories.

Stories provide a familiar, comprehensible structure for children encountering the nonlinear capabilities of hypermedia for the first time. And stories provide valuable design guidelines for hypermedia designers (McLellan, in press). Stories set up an expectation at the beginning, which is elaborated or complicated in the middle, and satisfied at the end. "Stories are linked beginning to end by the establishment of an expectation in the beginning that is satisfied in the end. Thus, good stories are characterized by a powerful principle of coherence. Stories hold their power over us as long as all the events stick to and carry forward the basic rhythm (Egan, 1986)." Thus, the implication for hypertext design is that the information, the lesson should be organized coherently and meaningfully, with no extra baggage --- at least in the initial presentation. This suggests that selection and organization are more more important than comprehensiveness.

The combination of stories and instruction in a HyperCard environment remains to be fully explored. However, the results of this study highlight children's great enthusiasm for this kind of interactive story. These results also point out that a new computer-based story

structure is in the early stages of development. Further research is needed, both in terms of how the story structure can be adapted to take advantage of the capabilities of HyperCard and also in conceptualizing new more active roles for learners encountering stories. Alessi & Trollip (1985) suggest that in any lesson, it may be valuable to encourage the students to envision themselves in a situation where they can really use the information they are learning: stories can help to encourage this visualization, especially as the learners, in the role of explorers or detectives, become part of the interactive story. One type of explorer role is the examination of story structure and features. Another role is as story creator. Both of these roles were featured in this project.

Conclusions

The study reported here suggests that children can adapt to the new story structure offered by HyperCard. However, in introducing children to HyperCard, it is valuable to provide training concerning the features of story structure so that children have a firm understanding of structural features when they explore a new type of story structure. Also, it is beneficial to have students practice designing stories for the hypertext medium, as was done in this study.

One implication is that learners often need reinforcement in understanding, and searching out, the underlying structure of any material they are presented with, whether in book or hypertext format. Without an understanding of the structure of traditional text, learners are at a further disadvantage in approaching the potentially more sophisticated structure of hypertext.

Another implication is that it might be valuable to design explorations to help learners think about, and practice using, the structural features of stories (Bromley, 1991; McLellan, in press). The hypertext program can be designed so that the learner explicitly examines story structure, together with the structure of the content domain and the way it is presented.

Future Research

The next stage of this study will be to develop HyperCard-based episodes that are somehow linked, featuring both pictures and text, and having the learners organize them

into interactive sequences that make sense to them, including possible additions they may wish to include. Models of an episodic structure include most of Woody Allen's movies (Radio Days, Manhattan, etc.) and also the movie Mystery Train by director Jim Jarmisch (Rosenblum & Karen, 1986). In this proposed research, students will be encouraged to make as many linkages as possible, and to build on what they have learned about story structure.

References

Alessi, S. M., & Trollip, S. R. (1985). Computer-based Instruction: Methods and Development. Englewood Cliffs, NJ: Prentice Hall.

Baecker, R., & Small, I. (1990). Animation at the Interface. In B. Laurel (Ed.). The Art of Human-Computer Interface Design. Reading, MA: Addison Wesley.

Bolter, J.D. (1991). Writing Space: The Computer, Hypertext, and the History of Writing. Hillsdale, NJ: Lawrence Erlbaum Associates.

Bromley, K.D. (1991), Webbing with Literature: Creating Story Maps with Children's Books. Boston, MA: Allyn and Bacon.

Discis Books (1990). Cinderella. [CD-ROM disc].

Discis Books (1990). A Long Hard Day at the Ranch. [CD-ROM disc].

Egan, K. (1986). Teaching as Storytelling: An Alternative Approach to Teaching and Curriculum in the Elementary School. Chicago, IL: University of Chicago Press.

Gage, N.L., and Berliner, D.C. (1988). Educational Psychology. Boston: Houghton Mifflin Co.

Goodenough, A. (1987). Amanda Stories. Santa Monica, CA: Voyager Company. [Computer Software].

Greenberger, M. (Ed.). (1990). On Multimedia: Technologies for the 21st Century. Santa Monica, CA: The Voyager Company.

McLellan, H. (In press). Hyper Stories: Some Guidelines for Instructional Designers. Journal of Research on Computing in Education.

Rosenblum, R., & Karen, R. (1986). When the Shooting Stops...The Cutting Begins: A Film Editor's Story. New York: Da Capo Press.